

REMARKS**Summary of the Office Action**

In the Office Action dated February 12, 2004, claims 1-4, 6, 9-13, 15 and 18 stand rejected under 35 U.S.C. § 103(a) as allegedly being unpatentable over U.S. Patent No. 6,078,686 to Kim (hereinafter "Kim"). Claims 5 and 14 stand rejected under 35 U.S.C. § 103(a) as allegedly being unpatentable over Kim in view of U.S. Patent No. 5,875,262 to Asada (hereinafter "Asada"). Claims 7 and 16 stand rejected under 35 U.S.C. § 103(a) as allegedly being unpatentable over Kim in view of U.S. Patent No. 5,287,418 to Kishida (hereinafter "Kishida"). Claims 8 and 17 stand rejected under 35 U.S.C. § 103(a) as allegedly being unpatentable over Kim in view of well-known prior art. Claims 19-38 are allowed.

Summary of the Response to the Office Action

Applicant amends independent claims 1-2 and 10-11 to differently describe the subject matter of the invention. Applicant amends claims 4 and 35 to improve the form of these claims. Applicant respectfully requests that the Examiner confirm the proper status of claims 33-38, as submitted in the amendment filed November 7, 2003, and entered with the Request for Continued Examination (RCE) filed January 6, 2004.

The Rejections under 35 U.S.C. § 103(a)

Claims 1-4, 6, 9-13, 15 and 18 stand rejected under 35 U.S.C. § 103(a) as allegedly being unpatentable over Kim. Claims 5 and 14 stand rejected under 35 U.S.C. § 103(a) as allegedly being unpatentable over Kim in view of Asada. Claims 7 and 16 stand rejected under 35 U.S.C. § 103(a) as allegedly being unpatentable over Kim in view of Kishida. Claims 8 and 17 stand rejected under 35 U.S.C. § 103(a) as allegedly being unpatentable over Kim in view of well-known prior art. Claims 19-38 are allowed.

Applicant amends independent claims 1-2 and 10-11 to differently describe the subject matter of the invention. Applicant respectfully submits that no new matter is introduced by these amendments as they are supported at least by the depictions in Figures 4-9 and 11-12 and by the recitation at pages 16, 28, 42 and 45-46 of the as-filed specification. Applicant also amends claims 4 and 35 to improve the form of these claims.

Independent claim 1, as amended, recites an image processing method of creating output image data comprising:

a step of determining at first a density conversion condition for an image expressed by the digital image data, the density conversion condition being a first conversion function for density correction between the digital image data and the output image data to increase or decrease a density of a whole image by a predetermined value.

Independent claim 1, as amended, further includes:

a step of determining next a gradation conversion condition for the image expressed by the digital image data on the basis of the density conversion condition, the gradation conversion condition being a second conversion function for the density correction and gradation correction between the

digital image data and the output image data to control gradations in a predetermined range of the density of the image.

Applicant respectfully submits that Kim does not teach or suggest the above-recited features of independent claim 1, as amended.

Applicant respectfully submits that Kim performs a first contrast enhancement by contrast enhancer 300 on a digital image. Next, Kim performs a sharpness enhancement by local contrast enhancer 400 on the image which has been subjected to contrast enhancement by contrast enhancer 300. However, the contrast enhancer 300 of Kim enhances the image contrast by equalizing the level of the luminance signals Y based on histogram equalization, for example, mean-separate histogram equalization, as discussed at column 4, lines 36-46.

In contrast, in the embodiment of the instant invention as recited in independent claim 1, a density conversion condition increases or decreases a density of the whole image by a predetermined value. Applicant respectfully submits that this density conversion condition is not to be construed as a modification of the histogram of the digital image data. Thus, Applicant respectfully submits that the density conversion condition of the steps recited in independent claim 1 differs from the contrast enhancer 300 of Kim.

Further, Applicant respectfully submits that the local contrast enhancer 400 of Kim detects a local contrast of an image and performs sharpness enhancement. In contrast, the gradation conversion condition recited in independent claim 1 controls gradations in a predetermined range of the density of the image. Thus, Applicant respectfully submits

that the gradation conversion condition of independent claim 1 differs from the local contrast enhancer 400 of Kim.

In view of the foregoing Applicant respectfully submits that Kim does not teach each feature of independent claim 1, as amended. MPEP § 2143.03 instructs that "[t]o establish prima facie obviousness of a claimed invention, all the claim limitations must be taught or suggested by the prior art. In re Royka, 409 F.2d 981, 180 USPQ 580 (CCPA 1974)." Thus, Applicant respectfully submits that independent claim 1, as amended, is patentable over Kim.

Independent claim 2, as amended, recites an image processing method of creating output image data comprising:

a step of determining a density conversion condition for converting a density of the density component data, the density conversion condition being a first conversion function for density correction between the density component data and a modified density component data to increase or decrease a density of a whole image by a predetermined value;

a step of determining a gradation conversion condition for converting a gradation of the digital image data on the basis of the density conversion condition, the gradation conversion condition being a second conversion function for the density correction and gradation correction between the density component data and the modified density component data to control gradations in a predetermined range of the density of the image.

Applicant respectfully submits that independent claim 2, as amended, is patentable over Kim for at least the same reasons as set forth above with regard to independent claim 1.

Independent claim 10, as amended, recites an image processing apparatus for creating output image data comprising:

density conversion condition determining means for determining a density conversion condition for an image expressed by the digital image data, the density conversion condition being a first conversion function for density correction between the digital image data and the output image data to increase or decrease a density of a whole image by a predetermined value;

gradation conversion condition determining means for determining a gradation conversion condition for the image expressed by the digital image data on the basis of the density conversion condition, the gradation conversion condition being a second conversion function for the density correction and gradation correction between the digital image data and the output image data to control gradations in a predetermined range of the density of the image.

Applicant respectfully submits that independent claim 10, as amended, is patentable over Kim for at least the same reasons as set forth above with regard to independent claim 1.

Independent claim 11, as amended, recites an image processing apparatus for creating output image data comprising:

density conversion condition determining means for determining a density conversion condition for converting a density of the density component data, the density conversion condition being a first conversion function for density correction between the density component data and a modified density component data to increase or decrease a density of a whole image by a predetermined value;

gradation conversion condition determining means for determining a gradation conversion condition for converting a gradation of the digital image data on the basis of the density conversion condition, the gradation conversion condition being a second conversion function for the density correction and gradation correction between the density component data and the modified density component data to control gradations in a predetermined range of the density of the image.

Applicant respectfully submits that independent claim 11, as amended, is patentable over Kim for at least the same reasons as set forth above with regard to independent claim 1.

Applicant further submits that claims 3-18 are allowable at least because of their respective dependence upon allowable claims 1-2 and 10-11, and for the additional features that they recite. Moreover, the Office Action has applied neither Asada nor Kishida against any of the features of independent claims 1-2 and 10-11. Accordingly, Applicant respectfully requests that the rejections of claims 1-18 under 35 U.S.C. § 103(a) be withdrawn.

The Allowable Claims

Claims 19-38 are allowed. Applicant thanks the Examiner for the allowance of claims 19-38. Applicant notes that the statement of reasons for the indication of allowable subject matter at page 6 of the Office Action appears to be directed to the subject matter disclosed in claims 19-32, of which claim 19 is an independent claim. Applicant also notes that no objection was raised by the Office Action with regard to claims 33-38 as dependent upon rejected claims 1-2 and 10-11, respectively. Applicant respectfully requests that the Examiner confirm the proper status of claims 33-38, as submitted in the amendment filed November 7, 2003, and entered with the Request for Continued Examination (RCE) filed January 6, 2004.

Conclusion

In view of the foregoing, Applicant respectfully requests reconsideration and reexamination of this application, withdrawal of all rejections and objections, and the timely allowance of all pending claims. Should the Examiner feel that there are any issues outstanding after consideration of this response, the Examiner is invited to contact Applicant's undersigned representative to expedite prosecution.

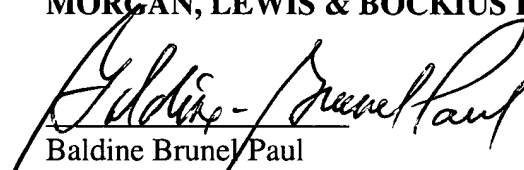
If there are any other fees due in connection with the filing of this response, please charge the fees to our Deposit Account No. 50-0310. If a fee is required for an extension of time under 37 C.F.R. § 1.136 not accounted for above, such an extension is requested and the fee should also be charged to our Deposit Account.

Respectfully submitted,

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Dated: May 12, 2004

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